Project Delivery Network

Materials Design QC Checklist

Version
01/16/2011

QC Manager:
Steve Anderson

Introduction

The Project Delivery Network Materials QC Checklist is to be used with the UDOT QC/QA Procedure. This checklist is a tool to assist the project team in verifying all work is produced with due diligence, using acceptable industry standard techniques, available resources and data, and reasonable decisions by competent professionals. The checklist is a tool for the delivery of quality documents and cannot replace the sound judgment and experience of competent professionals. It is the Design Team's responsibility to verify the quality of project documents **before** distribution.

Checklist Instructions

For each deliverable listed, the QC Checker is to verify all items listed in the checklist are complete, along with any additional items the QC Checker deems necessary. The checklist items are not to be interpreted as the only items that need to be verified.

Once all items are verified, the QC Checker is to sign the associated cover sheet and upload it onto ProjectWise. The QC is not complete until the cover sheet is signed, dated, and uploaded onto ProjectWise. See the Project Delivery Network QC/QA Procedure for the appropriate cover sheet.

QC reviews are to be completed **before** distribution.

The following explanations are to aid in completing the QC checklist items:

- A checklist item deemed "complete", "correct", or "accurate" does not denote that the item is perfect, but rather that the item satisfies design criteria based on known information, acceptable techniques, and sound judgment."
- A checklist item deemed "addressed" denotes the item as "reviewed all known concerns and verified the concerns are appropriately mitigated and satisfy design criteria." Addressed concerns are not necessarily incorporated into the design, but satisfactorily mitigated.
- A checklist item deemed "identified" denotes the item as "an acceptable and economical approach to satisfy design criteria based on known information."
- A checklist item deemed "verified" denotes the item as "verified the approach/conclusion as acceptable based on known information."
- Use the check boxes to verify the checklist items are complete. If a checklist item is *not applicable* to the current project, place an NA over the check box to denote the item as not applicable. This will allow the quality assurance to verify all items were addressed.
- Use the comment sections of the Cover Sheets to address exceptions, assumptions, and unique aspects of the project. The comments will help others understand why certain decisions were made and their impacts on the project.

2M1 Develop Pavement Design and Report

Evaluate the existing pavement condition and compare the results of the evaluation to the existing conditions documented in the concept phase's preliminary pavement design. If a concept pavement design is not available, evaluate the existing pavement conditions to assess the level of pavement design needed. Confirm the concept report pavement design remains applicable and update/create the pavement design.

References

1. Pavement Management and Design Manual
2. Ride Index
3. Distress Manual
4. Pavement Type Determination
5. UDOT Project Delivery Network
6. UDOT Practical Design Guide
7. UDOT QC/QA Procedures

Pavement Conditions Report

1. ☐ Maintenance concerns were identified and addressed.
2. ☐ Correct report format used. (1)
3. ☐ The summary of existing pavement data and subgrade information are accurate. (1)
4. ☐ The soil classification is appropriate.
5. ☐ Pavement history is clear and contains all known information about the life of the pavement.
6. ☐ The preliminary testing strategy was approved prior to being performed. (1)
7. ☐ The core logs were collected using approved methods. (2)
8. ☐ All appropriate tests were conducted and documented properly.
    a. ☐ Falling weight deflectometer or structural measurements
    b. ☐ Rut measurements, ride index, and cracking type and extent (2, 3)
    c. ☐ Skid index (ASTM E274-06)
    d. ☐ Traffic data (i.e. traffic projections) (1)
    e. ☐ Ground penetrating radar
9. ☐ The Pavement Type Determination is appropriate. (1)
    a. ☐ The Regional Corridor Determination List was checked. (4)
    b. ☐ Pavement design analysis meets standards and project specific constraints.
    c. ☐ Life cycle and other economic concerns correctly analyzed. (1)
    d. ☐ Engineering analysis performed appropriately.
10. ☐ Possible project alternatives were considered using the following criteria. (1)
    a. ☐ Reconstruction vs. Repave
    b. ☐ Cost of alternatives

2M1 Continued

c. ☐ Design life

d. ☐ Maintenance

11. ☐ The conclusions and recommendations are clear and appropriate.

Pavement Design Report

1. ☐ The in-depth study of the pavement condition was accepted by the Region Pavement Manager and is included.
2. ☐ The recommendation of reconstruct or rehabilitate is appropriate.
3. ☐ The potential material sources and additional parameters, such as noise consideration, are verified.
4. ☐ The discussion about corridor designation is clear and correct.
5. ☐ The traffic data (projections) was reviewed and updated if necessary.
6. ☐ The appropriate methodology (i.e. ASHTO 93, MEPDG) is used.
7. ☐ All parameters are accurate and the Summary Report of Parameters is included in the Appendix.
    a. ☐ Frost depth
    b. ☐ Water table
    c. ☐ Drainage
    d. ☐ Noise
    e. ☐ Assumed CBR
    f. ☐ ESAL calculation
    g. ☐ PG binder map
    h. ☐ Soil classification
    i. ☐ Climate data
    j. ☐ All assumptions are listed
8. ☐ The conclusions and recommendations are complete, clear, and appropriate.
    a. ☐ The selection is properly justified.
    b. ☐ All alternatives are analyzed accurately.
        i. ☐ Reconstruction vs. Repave
        ii. ☐ Cost of alternatives
        iii. ☐ Design life
        iv. ☐ Maintenance
    c. ☐ The life cycle costs calculations are accurate.
    d. ☐ Constructability sensitivity accurately calculated.
    e. ☐ Adjustments for construction specifications are complete and correct.
9. ☐ If applicable, the Pavement Management Engineer (PME) has accepted the selected design.